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During the tenure of this grant significant progress on several problems was made. A simple treatment with much improved proofs of Hofbauer's theory of symbolic dynamics for mappings of an interval were obtained. Moreover, the researchers generalized and extended his results to more complicated interval mappings and to certain maps in two dimensional systems. Furthermore, they made progress on developing a general theory of symbolic dynamics for systems with two degrees of freedom. Finally, they completed work on certain algorithms for the computation of topological entropy in smooth systems.

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We obtained a simple treatment with much improved proofs of Hofbauer's theory of symbolic dynamics for mappings of an interval. Moreover, we generalized and extended his results to more complicated interval mappings and to certain maps in two dimensional systems. Furthermore, we made progress on developing a general theory of symbolic dynamics for systems with two degrees of freedom. Finally, we completed work on certain algorithms for the computation of topological entropy in smooth systems.

Some of the work which was supported in this contract appears in the following publications.

1. *Continuity Properties of Entropy* Annals of Math. 129(1989), 215-235.
2. *Entropy and Volume*, Jour. of Ergodic Theory and Dynamical Systems 8(1988), 283-299.
3. *On the computation of Topological Entropy*, pre-print, 1991, (with T. Pignataro).
4. *An improved Volume Lemma and Applications*, Israel J. of Math., 1991, (with Y. Kifer)
5. *On some results of Hofbauer on Maps of the Interval*, Proc. Int. Symp. on Non-linear Dynamics, Nagoya, Sept. 1990, to appear
6. *Error Analysis and the FFT* by K. Rillema, Master's Project, UNC, 1991